Department of Pesticide Regulation

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Director

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Winston H. Hickox
Secretary, California Environmental Protection Agency

M E M O R A N D U M

TO: Sue Edmiston **HSM-03021**
Agriculture Program Supervisor III
Worker Health & Safety Branch

FROM: Kathy Orr
Associate Environmental Research Scientist
445-4196

DATE: August 28, 2003

SUBJECT: PHYSICIAN FEEDBACK 2001

The purpose of this project was to develop a feedback mechanism to physician's who have filed Pesticide Illness Reports (PIR) to the Pesticide Illness Surveillance Program (PISP) in 2001. This feedback mechanism was initially established for year 2000 cases (released in 2002). When the annual illness summary report is released, DPR sends a letter to physicians who properly reported cases with information about the availability of the annual report and offer to prepare a custom query of the database for cases in their county. Although California has the most extensive and long-standing reporting system in the United States, pesticide-related illnesses are under-reported by physicians. Among the reasons for underreporting are thought to be lack of training for physicians in the area of recognition, diagnosis and treatment and unfamiliarity with state reporting requirements. Cases must be reported for all types of suspected pesticide exposures, including both occupational and non-occupational exposures, where a pesticide, including a disinfectant, is reasonably believed to be involved.

Section 105200 of the California Health and Safety Code requires that a physician report what is known or thought to be an event of pesticide-related illness to the local health officer by telephone within 24 hours. When this requirement is met, the health department informs the county agricultural commissioner and also completes a PIR, copies of which are distributed to the State Office of Environmental Health Hazard Assessment (OEHHA), to the California Department of Industrial Relations (DIR) and Department of Pesticide Regulation (DPR). Annual reporting of pesticide incidents by doctors via PIR accounted for 57 percent of the cases reported in 2001. However, between 1995 and 2000 the number of cases received as a PIR ranged from as 25 to 42 percent with an average of 32 percent of total illnesses reported.

After DPR explored several different methods to improve the completeness and timeliness of pesticide illness reporting in California, the physician feedback project was initiated. In 1994, DPR initiated an effort to enhance physician reporting and familiarity of the requirement. This objective was met by sending summaries of the reporting requirements for pesticide related conditions to all actively registered physicians within the state of California. Subsequently, throughout 1995 and 1996, DPR sent individual reminders when it was determined that physicians failed to report pesticide-related illnesses. These physicians were predominantly

identified through Doctor's First Report of Occupational Illness and Injury (a workers' compensation document). Physicians are required to file this report within 5 days of an initial examination, for every occupational injury or illness they encounter.

Another effort to improve reporting was the cooperation between DPR and the California Poison Control System (CPCS). This effort is particularly promising in identification of pesticide illnesses and provides information faster than all other avenues of reporting. In 2001, through funding with U.S. EPA, DPR negotiated a new contract with CPCS, which implemented software enhancements alerting poison control specialists upon case login that the substance may a pesticide and therefore a PIR is required. The phone technician then offered to report the case for the physician. Consequently, CPCS was the largest single source of case identification for 2001, accounting for the high percentage of PIR reporting. However, funding for this project was only temporary.

Feedback from the 1994 effort resulted in several proposed reasons for the failure of physician's to report. Physicians may be unaware of the reporting requirement or may not recognize that their patients are suffering from pesticide exposure. In some cases, physicians do not understand what constitutes a pesticide, antimicrobials in particular. Secondly, although a physician need only report to the local health officer, the number of agencies to whom the reports are submitted is confusing. These problems are addressed by the cooperation with CPCS. However, one of the biggest criticisms of the system was the lack of feedback to the reporting physician regarding the outcome of investigations. It was also suggested that the resulting data is underutilized, and that physicians are not provided with the percentage of actual pesticide illnesses relative to the number of physician reports received.

The current physician feedback project was developed in response to physicians who have expressed interest in learning the outcome of pesticide related illnesses that they have reported to the Department of Pesticide Regulation. Each physician or their staff member was sent a summary letter (attachment I) describing our objective with a prepaid response card (attachment II) offering them the opportunity to accept or decline further information when the next year's data is released. This included the option of requesting a printed copy of our illness surveillance program description, an annual pesticide incident summary, statewide pesticide summary tabulations and county specific pesticide illness profiles. The physicians that requested to remain on the mailing list last year were sent a summary letter (attachment III) notifying them of the 2001 report availability.

The "feedback" letters acknowledged the fact the medical provider reported a pesticide-related illness or injury case(s) to the local health officer in accordance with the Health and Safety Code section 105200 during the year 2000 or 2001. They were advised that the case was thoroughly investigated by the local county agricultural commissioner and the resulting data from the investigation was combined with the medical records and entered into our pesticide illness

surveillance database. In addition, it was pointed out the data is used to identify pesticide-related illness trends and evaluate the effectiveness of our regulatory program.

Three hundred twenty-nine individual physicians filed 558 PIRs in the year 2001. Three hundred eighty-three of the 558 PIRs were through the CPCS. A total of 313 letters announcing the release of the 2001 data were sent out to 2001 filers where the physician was identified. The filer was not identified on the remaining 16 cases. An additional 50 were sent out to those physicians who requested to remain on the list. Letters were also sent to each of the 58 County Health Officers in their respective counties.

Sixty-two postcard responses were received from physicians with 25 requesting 53 county summaries from 19 distinct counties. Thirty-two physicians requested to remain on the list. In addition, three county health officers requested general information, including a copy of "Guidelines for Physicians Who Supervise Workers Exposed to Cholinesterase-Inhibiting Pesticides". The overall response rate for 2001 feedback project was 25 percent with 10 percent requesting data, excluding 60 letters, which were returned to sender as undeliverable.

Table 1: Summary of Physician Requests for 2001 County Specific Data

County	**Number of Requests**	**County**	**Number of Requests**
Contra Costa	2	San Diego	3
Fresno	4	San Joaquin	6
Kern	3	Santa Barbara	2
Kings	1	Stanislaus	3
Los Angels	3	Sutter	2
Madera	4	Tulare	6
Merced	2	Ventura	2
Monterey	1	Yolo	1
Napa	3	Yuba	2
Sacramento	3	Total	53

The majority of the physicians who responded to the mailing reported non-agricultural cases (70 percent) in contrast to 21 percent in an agricultural setting. Of the remaining nine percent of cases, 60 percent were non-occupational in nature and were not classified as either agricultural or non-agricultural because it was determined during the investigation that no pesticide application had taken place. Forty two percent of the cases were occupational in nature, with the balance (58 percent) being a non-occupational exposure.

Of the 2001 incidents properly reported by physicians, the primary routes of exposure identified in both occupational and non-occupational settings were drift, residue, direct spray or spill. In addition to these exposure scenarios, ingestion accounted for 92 of the non-occupational cases. Individuals involved in pesticide applications accounted for a large number of cases in both work

and non-work related events. Seventy-two of the reported cases involved individuals less than six years of age (Table 2).

Table 2: Properly Reported Pesticide Illness Reports 2001 by Age

Less than 6 years old	6-18 years old	Greater than 18 years old	Unknown
72	42	436	8

This physician feedback project will be continued in 2004 for the 2002 data. Reporting physicians shall be offered follow-up information regarding cases they have reported through the system.

Table 3: 2001 Physician Reported Pesticide Illness Reports in California[1] Summarized by Type of Activity and Type of Exposure

Occupational[2]

Type of Activity[3]	Type of Exposure[4]								
	Drift	**Residue**	**Direct Spray/ Squirt**	**Spill/ Other Direct**	**Ingestion**	**Multiple**	**Other**	**Unknown**	**Total**
Mixer/Loader	6	0	2	14	0	0	0	1	25
Applicator	18	0	9	13	0	0	2	25	74
Mechanical	0	0	2	2	1	0	4	0	10
Packaging/Processing	0	1	0	0	0	0	0	0	2
Field Worker	8	24	0	0	0	0	1	0	35
Routine Indoor	2	3	1	1	1	0	1	1	11
Routine Outdoor	3	2	0	1	0	0	1	2	9
Manufacturing/Formulation	0	0	0	2	0	0	0	1	3
Transport/Storage/Disposal	0	0	1	4	0	0	5	3	14
Emergency Response	0	6	0	7	0	0	0	0	13
Other	5	7	2	4	1	2	6	1	30
Unknown	0	0	0	1	2	0	0	3	7
Total Occupational Cases	***42***	***43***	***17***	***49***	***5***	***2***	***20***	***37***	***233***

Non-Occupational[2]

Mixer/Loader	6	0	1	2	0	0	0	0	9
Applicator	25	0	9	11	1	3	2	24	81
Routine Indoor	10	19	6	2	32	4	1	12	92
Routine Outdoor	16	6	2	0	2	1	0	4	31
Other	7	4	0	3	47	2	5	3	77
Unknown	0	0	0	1	10	0	1	17	35
Total Non-Occupational Cases	***64***	***29***	***18***	***19***	***92***	***10***	***9***	***60***	***325***
Total Occupational/ Non-Occupational	**106**	**72**	**35**	**68**	**97**	**12**	**29**	**97**	**558**

Footnotes for Table 3

[1] **Source:** California Department of Pesticide Regulation, Pesticide Illness Surveillance Program.

[2] **Occupational Status:** Occupational or Non-Occupational

Occupational	: Work related. The individual was on the job at the time of the incident. This includes both paid employees and volunteers working in similar capacity to paid employees.
Non-Occupational	: Not work related. The individual was not on the job at the time of the incident. This category includes individuals on the way to or from work (before the start or after the end of their workday).

[3] **Type of Activity:** Activity of the injured individual at the time of exposure

Mixer/Loader	: Mixes and/or loads pesticides. This includes: (1) removing a pesticide from its original container, (2) transferring the pesticide to a mixing or holding tank, (3) mixing pesticides prior to application, (4) driving a nurse rig, or (5) transferring the pesticide from a mix/holding tank or nurse rig to an application tank.
Applicator	: Applies pesticides by any method or conducts activities considered ancillary to the application (e.g., cleans spray nozzles in the field).
Flagger	: Flags for an aerial application, either fixed-winged or helicopter.
Mechanical	: Maintains (e.g. cleans, repairs or conducts maintenance) pesticide contaminated equipment used to mix, load or apply pesticides as well as the protective equipment used by individuals involved in such activities. This excludes the following: 1) maintenance performed by applicators on their equipment incidental to the application; 2) maintenance performed by mixer/loaders on their equipment incidental to mixing and loading; 3) decontamination by HAZMAT teams.
Packaging/Processing	: Handles (packs, processes or retails agricultural commodities from the packing house to the final market place. Field packing of agricultural commodities is classified as FIELD WORKER.
Field Worker	: Works in an agricultural field performing tasks such as advising, scouting, harvesting, thinning, irrigating, driving tractor (except as part of an application), field packing, conducting cultural work in a greenhouse, etc. Researchers performing similar tasks in an agricultural field are also included.
Routine Indoor	: Conducts activities in an indoor environment with minimal expectation for exposure to pesticides. This includes people in offices and businesses, residential structures, etc. who are not handling pesticides.
Routine Outdoor	: Conducts activities in an outdoor environment with minimal expectation for exposure to pesticides. This excludes field workers in agricultural fields. This includes gardeners who are not handling pesticides.
Manufacturing and Formulation	: Manufactures, processes or packages pesticides. This includes “mixing” if it is done in a plant for application elsewhere.
Transport/Storage/ Disposal	: Transports or stores pesticides between packaging and preparation for use. This includes shipping, warehousing and retailing as well as storage by the end-user prior to preparation for use. Disposal of unused pesticides is also included in this activity. This excludes driving a nurse rig to an application site.

Emergency Response	:	Emergency Response Personnel (Police, fire, ambulance and HAZMAT personnel) responding to a fire, spill, accident or any other pesticide incident in the line of duty.
Other	:	Activity is not adequately described by any other activity category. This includes but is not limited to: 1) being inside a vehicle; 2) dog groomers not handling pesticides; 3) individuals handling pesticide treated wood; 4) two or more activities with potential for pesticide exposure.
Unknown	:	Activity is not known

[4] **Type of Exposure:** Characterization of how an individual came in contact with a pesticide.

Drift	:	Spray, mist, fumes, or odor carried from the target site by air. Drift must be related to an application or mix/load activity.
Residue	:	The part of a pesticide that remains in the environment for a period of time following an application or drift. This includes odor after the completion of an application.
Direct Spray/Squirt	:	Material propelled by the application or mix/load equipment. Contact with the material can be by direct projection or ricochet. This includes exposure of mechanics working on application or mix/load equipment when the material is forced out by pressure.
Spill/Other Direct	:	Any of the following: 1) Contact made during an application or mixing/loading operation where the material is not propelled by the equipment; 2) Expected direct contact during use (e.g. washing dishes in a disinfectant solution); 3) Leaks, spills, etc. not related to an application.
Ingestion	:	Intentional or unintentional oral ingestion.
Multiple	:	Contact with pesticides occurred through two or more mechanisms.
Other	:	Other known route of exposure not included in other exposure categories. This includes, but not limited to: 1) Residue from a spill and 2) Exposure to smoke or pyrolitic products from a fire where pesticides are burning.
Unknown	:	Route of exposure is not known.

<MONTH> <DAY> <YEAR>

<Salutation><FNAME><LNAME>
<HOSPITAL_CLINIC>
<Address1>
<CITY>, <STATE>, <ZIP>

Dear <Salutation> <LNAME>:

In 2001, you reported a pesticide-related illness or injury case(s) to the local health officer in accordance with the Health and Safety Code section 105200. Each case you reported was thoroughly investigated by the local county agricultural commissioner. The data from the investigation and medical records were entered into our pesticide illness surveillance database. These data are used to identify pesticide-related illness trends and evaluate the effectiveness of our pesticide regulatory program.

The annual summary report of cases reported during 2001 is now available. It can be viewed and down loaded from our department web site at http://www.cdpr.ca.gov/docs/whs/pdf/hs1843.pdf. Printed copies are available by request. The enclosed response card includes the option of requesting a printed copy.

We also offer you the option of receiving specialized reports, describing the distribution of pesticide incidents in your county by pesticides involved and exposure circumstances. If you have particular questions about the results or operations of the Pesticide Illness Surveillance Program, please feel free to contact me electronically at korr@cdpr.ca.gov or by mail at

Pesticide Illness Surveillance Program
Worker Health and Safety Branch
Department of Pesticide Regulation
California Environmental Protection Agency
Post Office Box 4015
Sacramento, California 95812-4015

Please take a few moments to fill out the postage paid card included with this letter. We would like to hear from you. Thank you for helping us keep track of pesticide health effects in California.

Sincerely,

Kathy Orr
Associate Environmental Research Scientist
Worker Health and Safety Branch
(916) 445-4196

Attachment II

«SAL» «FIRST» «LAST»
«CLINIC»
«ADD»
«CTY», «STATE» «ZIP_CODE»

I would like to continue to receive notifications of report availability

- ❑ NO: remove my name from your mailing list
- ❑ YES: keep my name and address on file as you have them
- ❑ YES: Correct my name and address to:

_____
_____
_____

Send printed information

- ❑ Program description
- ❑ Annual narrative summary
- ❑ Statewide summary tabulations
- ❑ Profile for _____County

Attachment III

<MONTH> <DAY> <YEAR>

«SAL» «First_Name» «Last_Name»
«CLINIC»
«Address»
«CTY», «STATE» «ZIP_CODE»

Dear «SAL» «Last_Name»:

In response to our previous mailing, you indicated interest in receiving announcements of reports on health effects from pesticide exposure. The Department of Pesticide Regulation has continued to identify, investigate, and record such events. We appreciate your efforts to help us maintain effective safety standards, and will continue to notify you of report availability unless you indicate that you no longer want to receive notification. Cases identified from 2001 have been thoroughly investigated by the county agricultural commissioners. The data from the investigations and medical records were entered into our pesticide illness surveillance database. These data are used to identify pesticide-related illness trends and evaluate the effectiveness of our pesticide regulatory program.

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Sincerely,

Kathy Orr
Associate Environmental Research Scientist
Worker Health and Safety Branch
(916) 445-4196